A workshop for
Pruning

Participant's Workbook

FOREST
RENEWAL BC

BRITISH
COLUMBIA

Ministry of Forests
Forest Practices Branch

106-0 5784 /

Acknowledgements

Thanks are extended to Symmetree Consulting for preparing the Instructor and Student Pruning workbooks to coincide with the Ministry's pruning training video *Pruning Second Growth Stands*.

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Thanks also go to Frank Barber of the Forest Practices Branch and to TM Communications of Victoria for the final compilation and production.

Learning Objectives

Participants will:

- understand the benefits of pruning
- become aware of basic pruning methods
- discuss and describe key biological principles, aimed at maximizing end product values for pruning
- rank stands for pruning using the *Pruning Guidebook* and discuss the rationale behind the guidelines
- investigate some potential management conflicts
- discuss SP and SMP requirements
- become aware of contractual issues
- discuss key evaluation criteria for monitoring contracts
- become aware of the key reporting issues

Pruning Workshop Outline

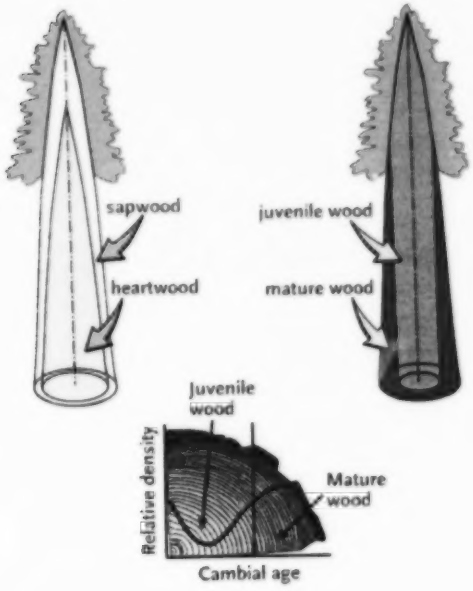
Workshop Introduction	8:00 – 8:15 am
The Benefits and Methods of Pruning	8:15 – 9:15 am
Pruning Principles	9:15 – 10:15 am
Coffee	10:15 – 10:30 am
Ranking Stands for Treatment	10:30 – 11:00 am
Developing Pruning Prescriptions	11:00 – 11:40 am
Administering Pruning Contracts	11:40 – 12:10 pm
Adjourn	12:30 pm

Introduction

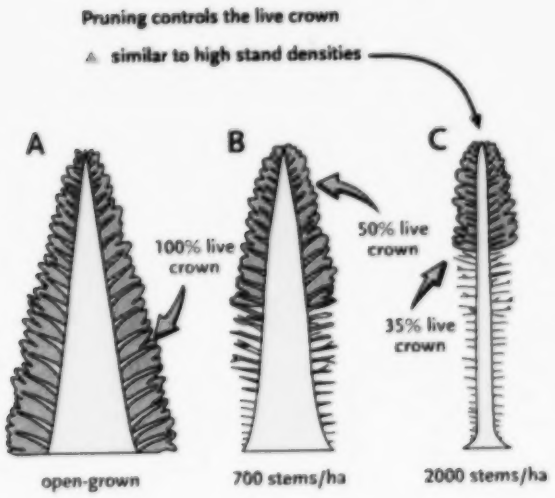
The Benefits and Methods of Pruning

Why do we prune?

Juvenile Wood vs Mature Wood

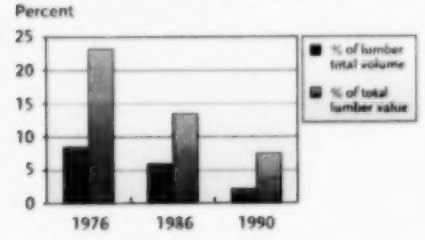


Live Crown and Stem Taper

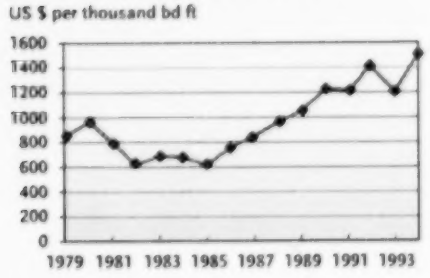


Trends in Clear Wood Values

Reduction in clear wood in the Pacific Northwest



Coast mill prices for Fdc lumber



Changes in End Product Mix

A typical coastal Douglas-fir stand grown at 500 stems/ha

	Without pruning	With pruning
Clears	**0%**	**12%**
Select and #1	**56%**	**48%**
#2 lumber	**24%**	**20%**
#3 lumber	**12%**	**12%**
Economy	**8%**	**8%**

How and when do we prune?

Notes:

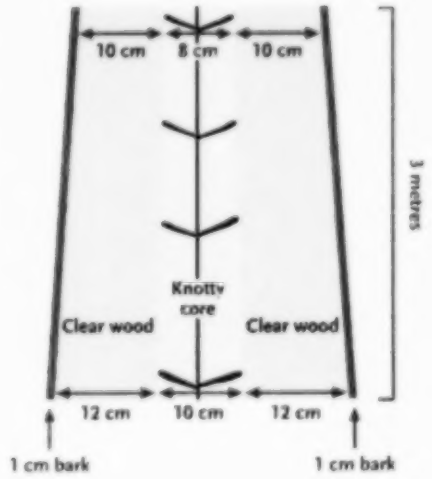
Pruning Principles

Small group exercise:

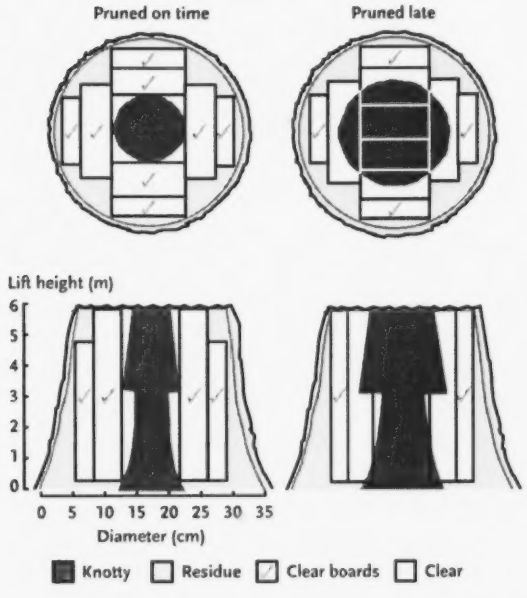
- Examine your assigned wood samples for key lessons pertaining to pruning to maximize investments.

The End Product Target for Pruning

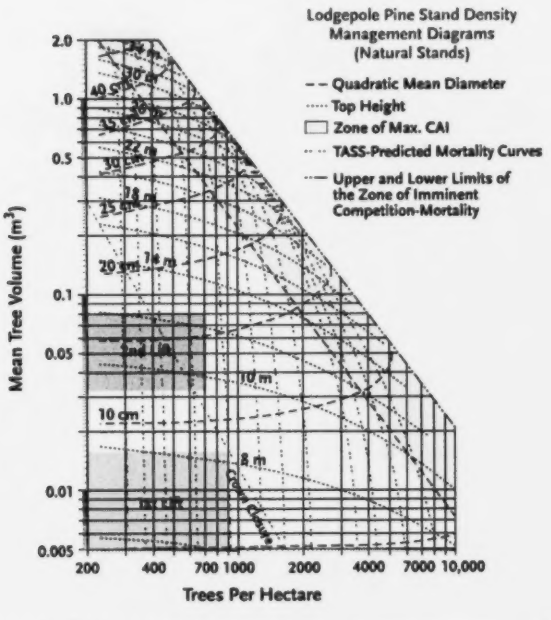
One Lift



Distribution of Clear Wood Relative to Timing of Treatment



Optimum Pruning Density
To Minimize Inter-crown Competition



Timing
Determining Optimum Pruning Height

How do I time my lift in a stand with variable heights?

Consider:

- **Height of pruning lift**
- **50% residual crown is best**

Example:

- **3 m single lift pruning**
- **average diameter trees should be:**
  - **6–7 m tall (50% LC)**
  - **5–10 cm dbh**
- **taller trees? should mostly be <12 cm dbh**
- **many smaller trees?**
  - **delay treatment until average diameter trees are closer to 7 m and 10 cm dbh**
  - **smaller trees can be 4.5 m**

Coastal Stand Ranking Exercise

Scenario: Which stand offers the best pruning investment opportunity?

You will have some money available in your silviculture budget over the next 5 years to do some pruning to help meet your management plan objective of achieving a range of end product values, including some high quality clear sawlogs in the next rotation. Three areas have been identified as potential pruning candidates. These are large stands. Any one of them should be able to absorb all of your pruning budget for the next five years.

Assume:

- all of the stands are 90% Douglas-fir, with minor amounts of hemlock and redcedar.
- no forest health damage is apparent in any of the stands.

Stand #1

SI_{50}:	22
height (m):	6.2
dbh (cm):	17
density (stems/ha):	900
distance from mill (km):	142
road condition:	minor repairs required

Stand #2

SI_{50}:	34
height (m):	7.1
dbh (cm):	14.3
density (stems/ha)	780
distance from mill:	89
road condition:	minor repairs required

Stand #3

SI_{50}:	30
height (m):	5.6
dbh (cm):	7.0
density (stems/ha)	520
distance from mill:	42
road condition:	good road

Your first choice: _____

Rationale: _____

_____

_____

Interior Stand Ranking Exercise

Scenario: Which stand offers the best pruning investment opportunity?

You will have some incremental money available in your silviculture budget over the next 5 years to do some pruning to help meet your management plan objective of achieving a range of end product values, including some high quality clear sawlogs in the next rotation. Three areas have been identified as potential pruning candidates. These are large stands. Any one of them should be able to absorb all of your pruning budget for the next five years.

Assume:

- all of the stands are 90% lodgepole, with minor amounts of Douglas-fir and spruce.
- no forest health damage is apparent in any of the stands.

Stand #1

SI_{50}:	21
height (m):	7.5
dbh (cm):	14
density (stems/ha)	650
distance from mill:	142
road condition:	minor repairs required

Stand #2

SI_{50}:	26
height (m):	8.1
dbh (cm):	12.3
density (stems/ha)	1100
distance from mill:	89
road condition:	minor repairs required

Stand #3

SI_{50}:	23
height (m):	6.5
dbh (cm):	7.8
density (stems/ha)	900
distance from mill:	42
road condition:	good road

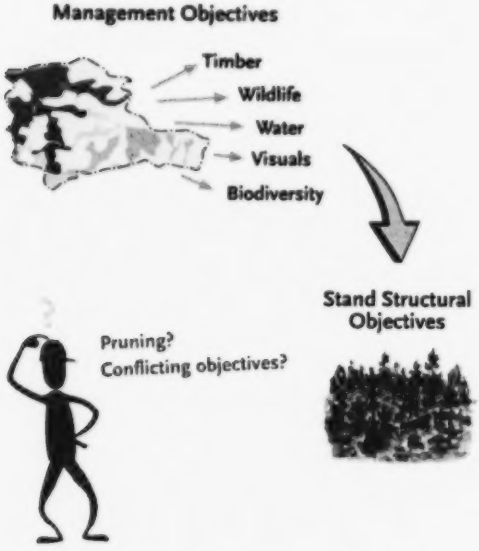
Your first choice: _____

Rationale: _____

_____

Other questions:

Management Objectives and Pruning



SMPs and SPs

Pruning

Mostly an incremental treatment

- ▲ SMP required

Sometimes a free growing obligation

- ▲ SP required
- ▲ two scenarios
  1. Pw is a crop tree
  2. low densities for habitat

Pruning White Pine Crop Trees

Normally Pw retained but not counted as a crop tree

> **Where Pw are to be managed as a crop tree, and if control of white pine blister rust is necessary, the Pw must be pruned to meet free growing requirements.**
>
> ***– Operational Planning Reg. 51(2)(d)(i)***

Rationale:

- **to directly remove threatening branch infections**
- **to reduce potential infection sites**
- **increasing clear wood – secondary objective**

Note: Proposed change in legislation to give the district manager discretion on pruning rust-tolerant white pine seedlings grown from Idaho seed stock to meet free growing requirements.

Pruning Very Open Stands Created for Habitat

Pruning required where minimum stocking is reduced to 30% lower than the guideline.

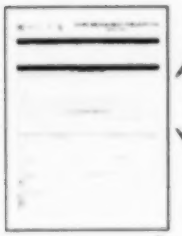
– Operational Planning Reg. 51(2)(d)(ii)

Rationale:

- **to address clumped stocking in coastal grizzly habitat**
- **volume is already compromised**
- **do not want to compromise value (high % juvenile wood and knots)**

Note: Proposed change in legislation to give the district manager discretion on pruning trees on lower productivity sites to meet free growing obligations where the volume and value of the timber is marginal (e.g., dry, low productivity sites that will not grow any appreciable large clear wood in a reasonable time frame).

Pruning Prescriptions and SMPs



B-2 – Stand Level Objectives

e.g., 1000 m^3/ha of 50 cm sawlogs at 90 years

D – Target Conditions & Strategy

e.g., The stand is to be spaced to 700 sph, followed immediately by pruning to 3 m. A second lift to 5.5 m will follow in about 8 years.

D-1 – Post-treatment Standards

E – Treatment Specifics

e.g., Shears or hand saws only – no chain saws will be allowed.

Pruning Prescriptions and SMPs

The Window of Opportunity Concept

Consider including a *Pruning Window of Opportunity* in Section D-1 (Post-treatment standards).

- **Use an upper limit for diameter beyond which no pruning will occur (e.g., 15 cm).**
- **In case funding does not come through in a timely fashion.**

Contract Administration and Project Administration

- How do you determine the timing of the various lifts?
- Suggest some approaches to space and prune combination projects.
- List the evaluation criteria for contract monitoring.
- What is the key issue for reporting?